LACI C40 CITIES CLIMATE MAYORS Hua Nani Partners

Public-Private Partnerships:

Strategic Playbook & Implementation Guide

Zero Emission Delivery City Climate Innovation Challenge

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Executive Summary

The COVID-19 pandemic has had a lasting impact on e-commerce and delivery services, which have experienced unprecedented growth since 2020.[1] As a result, urban freight and delivery activity in cities has increased to meet the high demand for delivered goods. However, this growth has also brought negative impacts, such as noise pollution, greenhouse gas (GHG) emissions, air pollution, and traffic congestion.[2] Research from the Urban Freight Lab has revealed that these environmental and health impacts disproportionately affect low-income populations and populations of color, with these communities exposed to approximately 35% more cargo van traffic than white neighborhoods, despite ordering fewer than half as many packages.[3]

In response to the growing impacts of urban freight, cities worldwide are adopting zero-emission delivery (ZED) solutions. These innovations not only help protect disadvantaged communities from the pollution caused by the rise of first- and last-mile delivery traffic in their neighborhoods, but also catalyze benefits such as safer, greener, and quieter neighborhoods. ZED solutions, which are gaining momentum across Europe and in U.S. cities like New York City and Seattle, can incorporate clean energy technologies like electric delivery vehicles (vans, trucks, and bicycles) and innovative infrastructure such as parcel lockers and delivery microhubs.

As cities navigate both technological innovation and shifting policy landscapes, zero-emission delivery solutions create natural opportunities for public-private collaboration. A 2019 report from the Los Angeles Cleantech Incubator (LACI), C40 Cities, and PWC estimates that climate innovation will spur over $5 trillion of new global investment opportunities in cities by 2030, highlighting the prime potential for cities and private partners to work together on clean tech projects.[4] These partnerships allow cities and businesses to combine strengths, share resources, and distribute both risks and rewards as they work toward reducing emissions and meeting local climate goals.

To address these challenges and opportunities, LACI created the City Climate Innovation Challenge (City Challenge) to work with cities across the country to invite, pilot and scale technology, business models, and policy innovations that accelerate equitable climate action. Building upon LACI's unique model of working with cities, startups, and other key public and private sector actors, the City Challenge selects partner cities to join cohorts around specific needs (e.g., zero emission delivery) and invites startup and corporate solutions to pilot in innovation sandboxes. The end goal is to accelerate the transition to zero emission urban goods delivery by developing, testing, and assessing a combination of EV infrastructure solutions and last-mile delivery technologies needed to decarbonize goods movement and benefit frontline communities that are disproportionately impacted from current high levels of pollution.

Recognizing that strong collaboration between the public and private sector is necessary for success, Hua Nani Partners produced this guide as part of LACI's City Climate Innovation Challenge to outline key multi-sector partnership models for cities to consider when planning zero

[1] https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf
[2] https://www.wri.org/research/zero-emission-delivery-zones-us-cities
[3] https://urbanfreightlab.com/wp-content/uploads/2024/06/10-1108_IJPDLM-08-2023-0301.pdf
[4] https://laincubator.org/wp-content/uploads/32205-Cleantech-cities-document_V11.4.pdf

emission delivery pilots. Made possible by funding from the US Department of Energy and Wells Fargo Foundation, this guide explores three public-private partnership frameworks, helping cities assess their influence and evaluate key factors when engaging private sector partners. Through real-world zero-emission delivery and transportation case studies, it offers practical guidance for cities seeking to accelerate clean delivery implementation through strategic public-private partnerships.

Business Models for Public-Private Partnerships

This section provides an overview of three common business models for public-private partnerships (PPPs).[5] These models define how partners share control and ownership of critical assets and operations, allowing cities to choose the right balance between maintaining public oversight and leveraging private sector innovation. For the purposes of this Playbook, 'public partner' refers to cities or local governments, while 'private partners' may include businesses, nonprofits, contractors, coalitions, academic institutions, or any other nongovernmental actor. It is important to note that while these three examples are some of the most common business models, this is not an exhaustive list. Many public-private partnerships consist of some nonstandard variation or combination of these descriptions, possibly including components such as memorandums of understanding (MOUs) or voluntary partner participation.

MODEL TYPE	CITY CONTROL LEVEL	FINANCIAL RISK	IMPLEMENTATION SPEED	STAFF REQUIREMENTS
OPERATIONS & MAINTENANCE	High	Low-Medium	Medium	High
LEASES & MANAGEMENT	Medium	Low	Medium-Fast	Medium
CONCESSION	Low	Very Low	Fast	Low

OPERATIONS & MAINTENANCE

In this model, a private entity is hired by the city for a fixed fee to operate and maintain public infrastructure or services. The city retains full ownership of the asset or service and may collect any revenue it generates. For example, a city could incentivize e-bike delivery by providing e-bikes to participants who sign up, and hire a private company to provide program operations support and maintain the equipment fleet. The city maintains a high level of strategic and directional influence, while the private entity performs its duties as directed by the public agency in return for a fixed fee.

LEASES & MANAGEMENT

Under a leasing model, a private entity leases an asset, such as land or real estate, from the city for a period of time. During this period, the private partner is typically responsible for the operations and maintenance of the asset while the city receives lease payments and retains ownership. The private entity may collect revenue from the leased asset but is often responsible for paying operational and maintenance costs. In the context of zero-emission delivery (ZED) and clean transportation, this model may involve a city leasing land to a private company to install and operate electric vehicle charging stations. The city retains ownership of the land and collects lease payments from the company, while the company conducts its business on the leased land. Under

[5] https://www.c40knowledgehub.org/s/article/How-cities-can-work-with-businesses-to-achieve-climate-goals?language=en_US

this model, the city maintains a moderate level of influence over the asset or service being provided.

CONCESSION MODEL

In a concession model, the city grants a private entity the rights to operate, maintain, and manage a public asset or service for a determined period of time. In return, the private partner typically invests in the asset, assumes operational risk, and may generate revenue from the asset. A city might operate its public transportation system under a concession model, where the city hires a private transportation company to provide its services to the public. Compared to the other models mentioned in this section, the city maintains a lower degree of influence over the asset or service being provided under this model.

Public-Private Partnership Considerations

Before launching zero-emission delivery partnerships, cities should evaluate several critical factors that exist on a continuum of city authority and influence. Some elements, such as city staff capacity, fall directly under city control, while others require coordination with key stakeholders like state governments or community groups. These considerations come into play at various phases of the process of setting up a public-private partnership.

INITIATION PHASE

This earliest stage includes exploratory project brainstorming, capacity planning, and goal setting. When initially exploring the possibility of establishing a public-private partnership to advance ZED-focused projects, cities should consider:

1. **City Staff Capacity:** Creating and implementing a public-private partnership can place a heavy burden on city staff. However, once established, these partnerships can help ease the administrative burden by distributing labor and responsibilities among all partners involved. Cities can also explore fellowship arrangements, where external entities fund and place staff within city agencies to advance certain projects. Examples include the Sustainable CT Fellowship Program and SEI's Climate Corps, two programs that place fellows in local government offices across Connecticut and California, respectively, to provide additional support on local sustainability projects. A similar model could consist of a tight partnership between a city and a non-profit partner to implement projects with approval and cooperation from the city (see Pittsburgh's Bikeshare Program case study).
2. **Goal Setting:** Cities should set clear, measurable, and achievable goals early on in the project planning phase. Setting project goals will help cities and partners stay on track with budgetary and time restrictions, and guide the project toward the desired outcomes. Project goals will also determine which types of data will need to be collected throughout the project, which will inform any data sharing agreements between the public and private partners.

PROJECT PLANNING AND DESIGN PHASE

Once project goals have been defined, cities can begin further planning and project design, taking into consideration the following factors:

1. **Regulatory Framework:** Regulatory frameworks, which may differ regionally, heavily influence parameters, funding, and oversight procedures involved in establishing and maintaining public-private partnerships. It is essential for cities to be familiar with their legal environments that may enable or hinder the implementation of these partnerships at the federal, state, and local levels.
    - **Federal:** The Clean Air Act, which regulates air emissions, is an example of a federal policy that enables states and cities to pass regulations under which ZED activities are possible.
    - **State:** California's Advanced Clean Cars II is an example of state regulations that might influence the feasibility and success of a ZED-focused public-private partnership. Under these regulations, all new passenger cars, trucks and SUVs sold in California must be zero emissions by 2035.
    - **Local:** Several US cities, including Austin, Honolulu, Los Angeles, Santa Monica, and Seattle, have signed onto C40 Cities' Green and Healthy Streets Accelerator. By doing so, these cities have pledged to procure only zero-emission buses from 2025 onward and ensure that a major area of the city is zero-emission by 2030. This pledge is an example of local city-based frameworks that enable and encourage the advancement of ZED solutions.
2. **Land Use and Regulatory Frameworks:** Cities have a high level of authority over the right of way and other local land use policies that can enable ZED activities. For example, ZED activities may require dedicated spaces within the right of way for loading and unloading. Cities must determine how much curb space can be designated for zero-emission deliveries without impeding other uses, and for what price this space can be allocated. Cities can also lease designated areas of land to serve as central project hubs (see Port of Long Beach case study) or arrange contracts that grant private partners the right to conduct business on several different locations (see San Antonio and Blink case study).
3. **Community Engagement:** Cities and private sector partners should prioritize engaging community members and building relationships throughout the entire project lifecycle, from initial planning to final implementation. This ensures that the community's needs are heard and addressed, and that new projects are responsive to local concerns. Gaining buy-in and leadership from private sector partners in the community engagement process is crucial, as establishing community trust is essential for developing impactful and successful projects. Whenever feasible, both public and private project partners should cultivate relationships with community-based organizations and local businesses. If private partners are not based in the project area, it is especially important for them to spearhead their own community engagement efforts to gain a deeper understanding of the local context and establish trust within the community. The following resources offer guidance for cities on conducting meaningful community engagement:

- Community Science Initiatives' Beyond Inclusion: Equity in Public Engagement: A Guide for Practitioners describes eight principles for equitable public engagement to inform decision-making and garner support.
- Metropolitan Area Planning Council's Community Liaison Model: An Emerging Best Practice for Community Engagement at the Intersection of Climate and Public Health offers a pathway for residents to lead localized engagement as community liaisons.
- U.S. Department of Energy's Creating a Community and Stakeholder Engagement Plan outlines requirements and provides guidance for stakeholder engagement plans in DOE-funded projects.
- U.S. Department of Transportation's Promising Practices for Meaningful Public Involvement in Transportation Decision-Making guides recipients of USDOT funding on meaningful stakeholder engagement, particularly with underserved and overburdened communities.
- Greenlining Institute's Beyond Engagement: Equity Principles to Guide State Departments of Transportation and Community Collaboration recommends strategies for transportation departments to engage historically excluded communities.
- Greenlining Institute's Roadmap to Equitable Community Transportation: Best Practices for Conducting Mobility Needs assessments, provides a pathway for community engagement partners and transportation planners to conduct equitable mobility needs assessments.

PROCUREMENT AND CONTRACTING PHASE

During this next stage, cities will begin the procurement process to identify the private partner(s) best suited to help achieve project goals. While procuring and contracting with private partners, cities should consider:

1. **Partner Procurement:** In general, open and competitive procurement will help cities select the best suited vendors, contractors, and other private sector partners. Cities can use two-stage bidding to decrease time and effort needed during this process and ensure they only review qualified and feasible bids. Cities should also consider when and how to use their procurement efforts to advance justice and equity and stimulate the local economy.
2. **Pricing Models:** Pricing and funding models for public-private partnerships will vary depending on the business model and asset or service involved. For assets and services that generate income, cities can arrange **revenue-sharing models** with private partners. Partners may also decide on a profit-sharing agreement based on certain utilization rates (see Port of Long Beach case study). Under an operations and maintenance contract, the city will contract out a private company for a **fixed fee.** Under a concession model, the city will collect **lease payments** from a private entity in return for temporary operating rights. Cities are also uniquely positioned to obtain federal funding for ZED projects through

legislation like the Bipartisan Infrastructure Law[6] and the Inflation Reduction Act.[7] The Inflation Reduction Act also includes twelve tax credits that cities are eligible to claim through the Direct Pay mechanism.[8] Cities can use these various forms of federal funding to help fund aspects of their public-private partnerships.

3. **Jobs and Economic Growth:** Public-private partnerships offer immense potential to create jobs and drive economic growth. Zero-emission delivery (ZED) initiatives, in particular, can provide sustainable green jobs that will likely remain in demand as the country transitions to a greener economy. Companies in the zero-emission transportation sector are increasingly shifting towards employing more W-2 workers, rather than relying on gig workers or independent contractors. This shift offers workers greater job stability and opportunities for professional growth.

   Cities can play a proactive role in stimulating the local economy and creating green jobs by being intentional in their solicitation and procurement processes. Partnering with local businesses and selecting project sites in underinvested areas can help create new economic opportunities within the community.

   Additionally, third-party non-profits can act as intermediaries between local or regional workforce development agencies and the private sector. By helping to identify the specific workforce needs of targeted industries, these organizations can facilitate job creation and workforce development. For example, the LACI has launched its Green Jobs Regional Partnership to quantify the types and numbers of jobs required to support the region's clean energy goals.

IMPLEMENTATION PHASE

As the project kicks off and moves into the execution and implementation stage, cities should take into consideration:

1. **Data Sharing:** Due to the communication needs between multiple partners, public-private partnerships often foster data sharing between sectors. Pilot ZED projects can collect data on factors such as usage, emissions reduction, and vehicle miles traveled (VMT) reduction, improving knowledge about ZED, informing other city projects, and helping build a case for broader implementation. When establishing public-private partnerships, cities should refer to their predetermined project goals to determine the relevant data categories to be shared amongst partners to help facilitate project planning efforts. Data should be collected transparently and regularly throughout the project's lifespan so that partners can keep track of project progress accurately.
2. **Risk and Reward Sharing:** Entering a public-private partnership involves sharing both the inherent risks and benefits associated with starting up a new project. Strong public-private partnerships allocate risks and rewards according to each partner's contributions and

[6] https://www.whitehouse.gov/build/guidebook/#:~:text=The%20Bipartisan%20Infrastructure%20Law%20makes,%2C%20energy%2C%20and%20the%20environment
[7] https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/
[8] https://www.whitehouse.gov/cleanenergy/directpay/

capabilities. Partnership models that delegate greater operational and financial responsibility to private partners, such as concession and joint venture models, involve less risk for cities. These private partners can also be non-profits or academic institutions without the required processes for governments, thus facilitating faster results (see Seattle Neighborhood Delivery Hub case study). Working with independent partners like LACI can also help reduce the level of risk involved for cities and facilitate smoother projects with quicker results.

EQUITY CONSIDERATIONS

Justice and equity considerations should be central considerations throughout the entire process of establishing a public-private partnership. Conventional urban freight and delivery services often disproportionately impact communities already burdened by noise and air pollution. At a minimum, ZED projects should aim to mitigate these negative impacts and strive to provide tangible benefits to these communities.

Different project structures can offer unique opportunities to support disadvantaged communities. For instance, Pittsburgh's partnership with the nonprofit Bikeshare Pittsburgh enabled the city to expand its transit system to underserved areas by strategically installing bikeshare docks in these locations. Several resources are available to help cities prioritize justice and equity in their public-private partnerships:

- PolicyLink's Building for the All! A Guide for Local, State, and Tribal Governments in the Infrastructure Moment guides government agencies on ways to advance justice and equity through infrastructure projects. The guide recommends a set of actions governments can take to make equitable infrastructure projects the standard.
- There are several national, state, and local tools to gather environmental justice data. Urban Institute's Screening for Environmental Justice provides a framework for evaluating the various tools available and provides recommendations on best practices for gathering and analyzing environmental justice data. EJScreen is the U.S. Environmental Protection Agency's primary environmental justice screening and mapping tool, combining environmental and socioeconomic indicators to inform project planning.
- Emerald Cities' Environmental Justice Project Measurement and Evaluation Framework provides a framework to evaluate a project's environmental justice goals and outcomes.

Case Studies

ZERO-EMISSION DELIVERY

The following case studies showcase successful public-private partnerships between cities and their private partners in advancing zero-emission delivery solutions. While the specific technologies and implementations vary, they all demonstrate the potential for strategic collaboration to accelerate the adoption of cleaner, more sustainable urban freight practices.

SEATTLE MUNICIPAL TOWER PARCEL LOCKER[9]

In 2018, the Urban Freight Lab (UFL) at the University of Washington piloted a common carrier parcel locker at the Seattle Municipal Tower, achieving a 78% reduction in delivery times and zero missed deliveries. This system allowed any retailer and delivery service to utilize the locker, providing smaller businesses access to the same advantages as larger companies. A commercial area was selected for the project site to increase delivery density and provide a secure location.

Partners Involved:

- Seattle Department of Transportation (SDOT): Responsible for negotiating scope of work and contracting with UFL.
- Urban Freight Lab (UFL): Lead research partner responsible for overall management and maintenance.
- Retailers, freight carriers, parcel delivery services, locker provider, and real estate company.

Business Model: Operations and Maintenance Contract - the City of Seattle paid UFL to manage locker system operations through a memorandum of understanding (MOU). MOUs may be viable agreements for cities to pursue if they are working with close, trusted partners, or quasi-governmental partners such as public universities.

Key Considerations:

- Justice and Equity: By making the parcel locker available to any retailer, this project lowered sustainability barriers for small businesses.
- Land Use and Right of Way: Project partners selected a commercial building to host parcel lockers due to its centralized location, security, and delivery density.
- City Staff Capacity: SDOT maximized staff capacity by closely collaborating with and delegating management to UFL.

Results:

- 78% reduction in delivery times.
- Zero missed deliveries.
- Increased access for small and local businesses.

[9] https://nacto.org/wp-content/uploads/2021/06/BuildingHealthyCities_UrbanFreight_ParcelLockers.pdf

SEATTLE NEIGHBORHOOD DELIVERY HUB[10]

The Seattle Department of Transportation (SDOT) partnered with the Urban Freight Lab (UFL) and several private companies to establish a central drop-off and pick-up point for local deliveries. The multi-partner structure reduces inherent staff effort and operational and financial risk for any single partner.

Partners Involved:

- Seattle Department of Transportation (SDOT): Facilitates city street usage and data sharing.
- Urban Freight Lab (UFL): Project convenor and lead for evaluation and on-site operations.
- REEF: Land owner.
- AxleHire: Coordinates deliveries and route design.
- BrightDrop: Provides the electric pallets and storage container used at the site.
- Coaster Cycles: Provides custom e-cargo trikes for last-mile deliveries.

Business Model: UFL-initiated partnership with the City of Seattle electing to participate. This project is an example of ways in which cities can participate in PPPs without necessarily being the lead partner.

Key Considerations:

- City Staff Capacity: The City of Seattle's supporting role reduces staff burden compared to leading the project.
- Data Sharing: Robust data-sharing agreement and dashboard created by SDOT and AxleHire through a Memorandum of Understanding, outlining the types of data to be shared, the methods of sharing, and the frequency of data exchange.
- Risk and Reward Sharing: Privately owned land and private partner leadership minimizes city risk while providing data access.

Results:

- Precedent set for future pilot projects.
- Potential to inform future policy and infrastructure decisions.

SAN FRANCISCO E-BIKE DELIVERY PROGRAM[11]

The San Francisco Environment Department partnered with GRID Alternatives, San Francisco Bicycle Coalition, Driver's Seat, and The Hub Bicycles to pilot an E-Bike Delivery Program providing e-bikes to delivery drivers. Participants can keep the e-bike after completing data collection and surveys.

Partners Involved:

- San Francisco Environment Department: Project lead.
- GRID Alternatives: Main implementation partner handling procurement, recruiting, and day-to-day operations.
- San Francisco Bicycle Coalition: Provides mandatory safety training.

[10] https://www.seattleneighborhoodhub.com/

[11] https://www.sfenvironment.org/ebike-delivery-pilot#:~:text=Program%20Overview.to%20use%20for%20their%20deliveries.

- Driver's Seat: Main data collection partner tracking deliveries and earnings through their app.
- The Hub Bicycles: Provides e-bikes and maintenance through local shops.

Business Model: Operations and Maintenance Contract - The San Francisco Environment Department contracted with GRID Alternatives to handle day-to-day operations of the pilot, allowing GRID Alternatives to procure additional partners to provide other services and equipment.

Key Considerations:

- Data Sharing: Driver's Seat leads data collection and management through their centralized app.
- Partner Procurement: Local CBO partner (familiarity with target audience) and dedicated data partner streamlined effort. CBO partners typically have strong familiarity with local project audiences and are able to take on responsibilities that city staff may not have capacity for.

Results:

- Program launched in Fall 2024.
- Participants gain access to e-bikes for deliveries and personal use.

PORT OF LONG BEACH, MEDIUM- AND HEAVY-DUTY EV CHARGING[12]

The Port of Long Beach (POLB) is partnering with companies to install EV charging stations on Port property for drayage trucks, spurring the transition to zero-emission vehicles. POLB leases land to partners to build and operate charging facilities.

Partners Involved:

- Port of Long Beach.
- WattEV, 4Gen Logistics, Forum Mobility: Lease land from POLB to build and operate charging stations.

Business Model: Leases - POLB leases land to private partners who operate charging facilities.

Key Considerations:

- Land Use and Right of Way: POLB leverages public land ownership to create EV charging opportunities in a multimodal hub.
- Data Sharing: POLB's leasing agreements require partners to provide quarterly usage reports, including information on all kWh used for vehicle charging at the facilities.
- Pricing Models: Base rent increases with utilization, allowing POLB to capture upside.
- Risk and Reward Sharing: Leases provide relatively stable, low-risk revenue for POLB.

Results:

- Charging stations installed on Port property.
- Spurring transition to zero-emission drayage trucks.

[12] https://polb.com/port-info/news-and-press/port-partners-power-ahead-with-truck-charging-stations-01-30-2024/

TRANSPORTATION

The case studies below highlight public-private partnerships focused on transportation initiatives. Although these projects may not be directly related to zero-emission delivery, they offer valuable insights that can be applied to the movement of goods through zero-emission delivery services. The transportation of people through these partnerships can be seen as analogous to the transportation of goods in terms of the business models, key considerations, and results achieved.

NEW YORK CITY'S CURBSIDE EV LEVEL 2 CHARGING PILOT PROGRAM[13]

The New York City Department of Transportation (NYC DOT) partnered with Con Edison, the local utility company, to launch a Curbside Level 2 EV Charging Pilot Program funded by the New York State Department of Public Service.

Partners Involved:

- New York City Department of Transportation (NYC DOT): Authorized public right of way, led community outreach and site selection.
- Con Edison: Managed site engineering, construction, and procurement of charging company.
- FLO: Provides, operates, and maintains charging equipment; handles customer billing and payments.

Business Model: NYC DOT and Con Edison entered into a demonstration agreement to conduct this project, establishing them both as implementation partners with the goal of demonstrating the feasibility and success of hosting curbside charging in public rights-of-way. To procure the private partner who would provide, operate, and maintain the charging equipment, Con Edison employed an Operations and Maintenance Contract with FLO. Under this contract, FLO provides site and equipment maintenance, customer service, data collection and reporting, billing and payments, and other operations-related responsibilities.

Key Considerations:

- Land Use and Right of Way: NYC DOT selected Level 2 chargers for their compact size, affordability, and ability to provide substantial charge during curbside parking sessions; facilitated site selection and authorized public right of way.
- Community Engagement: NYC DOT selected sites with geographic and economic diversity, considered community input, launched online feedback portal, and conducted informational sessions.

Results:

- According to the pilot's Evaluation Report, establishing public-private partnerships for this project with Con Edison and FLO allowed NYC DOT to "speed deployment, leverage private investment, and reduce financial exposure to the city."[14]

[13] https://www.nyc.gov/html/dot/downloads/pdf/curbside-level-2-charging-pilot-evaluation-report.pdf
[14] Ibid.

PITTSBURGH'S BIKESHARE PROGRAM, POGOH[15]

POGOH, Pittsburgh's local bikeshare program, is operated by Bike Share Pittsburgh Inc., a 501(c)3 nonprofit. The program is integrated into Pittsburgh's transit system, with users able to pay for rides through the Pittsburgh Regional Transit app.

Partners Involved:

- City of Pittsburgh: Facilitates permitting process for POGOH stations.
- Bike Share Pittsburgh Inc.: Operates POGOH bikeshare program.
- Port Authority of Allegheny County: Partnered to offer free short trips to ConnectCard holders.

Business Model: Concession model - The City hires Bike Share Pittsburgh to provide micromobility as a form of transit.

Key Considerations:

- Justice and Equity: POGOH offers reduced pricing for high-need users through Mobility Justice Membership.
- Partner Procurement: The City of Pittsburgh cites partnering with a nonprofit organization as a key element of project success. Since profit is not the main driver behind a city's interest in providing public transit services, nonprofit organizations can be well-suited to partner with cities on transportation-related projects, including those that advance ZED solutions.
- Land Use: The City is able to capitalize on land use authority to facilitate permitting for new POGOH stations, helping the bikeshare system operate and expand more effectively.

Results:

- Expanded public transportation network by providing bicycles as a viable micromobility option.
- Nearly 25% of trips made by ConnectCard users during the one-year pilot in 2018.

SAN ANTONIO AND BLINK[16]

In 2021, the City of San Antonio contracted Blink, an EV charging company, to deploy 202 Level 2 charging stations and 3 DC fast-chargers across the city as part of its Electric Vehicle San Antonio Program (EV-SA). Blink received funding through the Texas Volkswagen Environmental Mitigation Program, allowing them to offer the City a cost-neutral proposal with a 50/50 revenue split after breaking even on project costs.

Partners Involved:

- City of San Antonio.
- Blink: Deploys, operates, and maintains EV charging stations.

[15] https://pogoh.com/how-it-works/

[16] https://blinkcharging.com/news/san-antonio-city-council-names-blink-charging-as-provider-of-ev-charging-infrastructure-for-the-citys-evsa-program-following-competitive-proposal-process

Business Model: Concession model - Blink provides EV charging stations to the City and community, with more hands-on management from the City compared to typical concession models.

Key Considerations:

- Pricing Models: Blink offered services at no cost to the City, with a 50/50 revenue split after breaking even; however, budget overruns and retrofitting expenses have delayed the break-even date, so the City has yet to collect any funds from the revenue-sharing agreement.
- Land Use: Charging stations are mostly located on public land, allowing easy City access for monitoring and maintenance.

Results:

- 202 Level 2 charging stations and 3 DC fast-chargers deployed across the city.
- City has yet to collect funds from revenue-sharing agreement due to delayed break-even date.

BIRMINGHAM AND VIA[17]

In 2019, the City of Birmingham launched a partnership with Via, an on-demand rideshare service provider, to provide on-demand shared ride services to complement and expand public transportation across the Greater Birmingham area. The pilot program's service area focused on high-need areas with subpar access to public transportation, connecting communities to essential services for a flat fee of $1.50 to users.

Partners Involved:

- City of Birmingham.
- Community Foundation of Greater Birmingham.
- Via: Provides on-demand shared ride services.

Business Model: Concession model - the City hires Via to provide microtransit services as an extension of the City's public transit system.

Key Considerations:

- Justice and Equity: The City of Birmingham leveraged its public-private partnership with Via to provide transportation services in high-need, underserved areas.
- Pricing Models: The City does not make a profit from the program; flat service fee of $1.50 has not changed since the program's inception.

Results:

- Continued operation as of 2024 with the same flat fee.
- High need for connective transit services, program popularity, and positive City-Via relationship have resulted in overall project success and ongoing partnership.

[17] https://www.birminghamal.gov/2019/09/24/city-of-birmingham-partners-with-via-to-operate-an-on-demand-shared-ride-service/

Insights

Our research reveals critical success factors for ZED initiatives that specifically leverage PPPs. While these programs continue to evolve, understanding where PPPs provide unique advantages—and what conditions are needed for success—is crucial for cities considering these initiatives.

E-BICYCLE PROGRAMS

STRATEGY COMPONENTS

Encourage gig worker participation through strategic outreach. The post-pandemic rise in food[18] and grocery[19] deliveries have increased delivery-related GHG emissions from gig services. Cities can offset these emissions by partnering with organizations capable of conducting targeted outreach to invite gig workers to participate in e-cargo bike programs. For example, San Francisco's partnership with GRID Alternatives enabled direct recruitment at local food delivery hotspots, significantly boosting on-the-ground promotion and program participation.

Create sustainable incentive structures. Public-private partnerships can leverage diverse funding streams to offer compelling incentives for e-bike adoption. San Francisco's model, allowing participants to keep their e-bikes after program completion through partnership with The Hub Bicycles, demonstrates how strategic collaboration can create lasting program benefits.

IMPLEMENTATION REQUIREMENTS

PPP Value: Private partners bring operational flexibility and diverse funding streams that government procurement processes often can't match.

Required Context: Success requires sufficient population density and concentrated food delivery zones.

DELIVERY MICROHUBS AND PARCEL LOCKERS

STRATEGY COMPONENTS

Prioritize strategic siting decisions. The success of delivery microhubs and parcel lockers depends heavily on location selection. Cities should conduct thorough analysis to ensure sites are accessible without contributing to traffic congestion or noise pollution. Partners like UFL in Seattle have demonstrated the value of selecting centralized locations in dense urban areas to maximize delivery efficiency.

Design for inclusive business participation. Systems should be structured to benefit both small local businesses and large carriers. The Seattle Municipal Tower Parcel Locker's open-access model

[18] https://secondmeasure.com/datapoints/food-delivery-services-grubhub-uber-eats-doordash-postmates/
[19] https://www.grandviewresearch.com/industry-analysis/meal-kit-delivery-services-market

provides smaller businesses the same advantages as major companies, supporting local economic development while advancing sustainability goals.

Integrate with existing delivery networks. Successful microhubs can serve as connection points between various clean delivery modes. The Seattle Neighborhood Delivery Hub exemplifies this through its partnership with Coaster Cycles for last-mile e-cargo bike deliveries. Local bike shop partnerships can provide crucial maintenance support and expertise.

IMPLEMENTATION REQUIREMENTS

PPP Value: Private expertise in logistics and technology complements public control of land use and right-of-way, bringing sophisticated delivery data analysis capabilities cities often lack internally.

Required Context: Requires dense urban cores with high delivery volumes and available public/private space for hub locations. Success depends on existing delivery activity within a 1-2 mile radius.

ELECTRIC DELIVERY VAN PROGRAMS

STRATEGY COMPONENTS

Expand beyond large carriers through local incentives. While major companies like Amazon[20] and FedEx[21] lead in electric van adoption, cities can accelerate broader uptake through targeted local business support. LACI's zero-emission delivery pilot in South Los Angeles demonstrates effective multi-partner collaboration. Working with the California Air Resources Board (CARB), the Los Angeles Department of Transportation (LADOT), and Penske, LACI provides local businesses free access to electric Ford Transit Cargo Vans, removing financial barriers to clean delivery adoption. Cities can also leverage programs like the Breaking Barriers Collaborative's Fleet Decarbonization Accelerator to support organizations transitioning to electric fleets.[22]

Create connected delivery ecosystems. By strategically linking microhubs, parcel lockers, and electric van operations, cities can build networks that maximize efficiency and accessibility. Seattle's approach exemplifies this strategy: their Neighborhood Delivery Hub connects with the Municipal Tower Parcel Locker to create a comprehensive system accessible to businesses of all sizes. This integration makes the transition to electric vehicles more attractive for local businesses by providing the supporting infrastructure needed for efficient operations. When ZED elements complement each other, the resulting network becomes more convenient and effective for all participants.

IMPLEMENTATION REQUIREMENTS

[20] https://www.aboutamazon.com/news/transportation/everything-you-need-to-know-about-amazons-electric-delivery-vans-from-rivian
[21] https://www.fedex.com/en-us/sustainability/electric-vehicles.html#:~:text=With%20more%20than%20200%2C000%20motorized,battery%2C%20in%20California%20in%201994.
[22] https://www.breakingbarrierscollaborative.org/

PPP Value: Private partners can absorb upfront costs and risks that city budgets often cannot justify, while providing operational expertise and technology infrastructure.

Required Context: Need sufficient charging infrastructure and delivery demand to justify fleet investments. Works best in regions with supportive state/utility incentives and adequate grid capacity.

EV CHARGING

STRATEGY COMPONENTS

Maximize infrastructure utility through multi-use design. Cities can increase the value of charging investments by incorporating community benefits. The Seattle Neighborhood Delivery Hub demonstrates how charging infrastructure can be integrated with community spaces and neighborhood amenities.

Explore revenue-sharing pricing models. Revenue-sharing agreements, like those used by the Port of Long Beach and San Antonio's Blink partnership, can support long-term program sustainability by funding maintenance costs and generating public revenue while offsetting initial investments.

IMPLEMENTATION REQUIREMENTS

PPP Value: Revenue-sharing models with private operators can make projects financially sustainable where public funding alone would be insufficient. Private expertise in charging operations complements public land assets.

Required Context: Success requires adequate electrical infrastructure and land availability. Cities need supportive utility partnerships and appropriate zoning for charging locations.

Conclusion

As cities work to expand zero-emission delivery programs, the path forward requires both innovation and collaboration. Complex challenges in urban logistics, funding, and implementation demand solutions that leverage the strengths of both public and private sectors. Through strategic partnerships, cities can build programs that are more adaptable, financially sustainable, and impactful than traditional public-sector initiatives alone.

This Playbook provides a framework for cities to develop effective public-private partnerships in the zero-emission delivery space. By focusing on practical business models, key considerations, and real-world examples, it offers guidance for creating programs that not only advance climate goals but also promote equity and economic opportunity. As the landscape of urban delivery continues to evolve, these partnerships will be essential for creating lasting change in our communities.

Resource Appendix

Below are additional resources to assist cities in developing and implementing effective zero-emission delivery partnerships.

- Public Private Partnership Resource Center (PPPRC) - The World Bank
- Public-Private Partnerships for Climate Finance - Norden
- Accelerating Zero-Emissions Delivery: An innovative approach to transforming the last mile - Environmental Defense Fund (EDF)
- Zero-emission Delivery Zones: A New Way to Cut Traffic, Air Pollution and Greenhouse Gases - World Resources Institute (WRI)
- Unlocking Public-Private Partnerships: A Toolkit for Local Governments - ICLEI
- Charging Forward: Evaluating Public-Private Partnerships for Electric Bus Base Conversion to Support a Zero-Emission Fleet - University of Washington
- Delivery Microhub Feasibility Study - DC Department of Transportation and Metropolitan Washington Council of Governments (MWCOG)